Eugene S. Grecheck
Vice President
Nuclear Development

Dominion Energy, Inc. • Dominion Generation
Innsbrook Technical Center
5000 Dominion Boulevard, Glen Allen, VA 23060
Phone: 804-273-2442, Fax: 804-273-3903
E-mail: Eugene.Grecheck@dom.com

Dominion®

July 17, 2008

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. NA3-08-079R
Docket No. 52-017
COL/LTB

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE ENVIRONMENTAL REVIEW

On June 18, 2008, NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA). The responses to the following RAIs are provided as enclosures to this letter:

- RAI Question ER Section 2.4-1 Construction Footprint – Habitat Overlay
- RAI Question ER Section 2.4-2 Wetland/Stream Impact – Mitigation Methods
- RAI Question ER Section 2.4-3 Transmission ROW Habitat Description
- RAI Question ER Section 4.1-1 Construction Boundaries – Cultural Surveys
- RAI Question ER Section 9.2-1 Alternative Coal-Fired Plant Normalized
- RAI Question ER Section 9.2-2 Alternative Gas-Fired Plant Normalized
- RAI Question ER Section 3.4-1 Intake Design
- RAI Question ER Section 10.4-1 Quantify Benefits

The responses to RAI questions ER Section 2.4-1, 2.4-2 and 4.1-1 contain proprietary information that should be withheld from public disclosure pursuant to 10 CFR 2.390. A signed affidavit that provides the basis for classifying the information as proprietary is enclosed. Redacted versions of the affected responses are also enclosed.

Please contact Tony Banks at (804) 273-2170 (tony.banks@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck

Enclosures:

Enclosure 1 – Response to RAI Question ER Section 2.4-1 (Proprietary Version)
Enclosure 2 – Response to RAI Question ER Section 2.4-2 (Proprietary Version)
Enclosure 3 – Response to RAI Question ER Section 2.4-3
Enclosure 4 – Response to RAI Question ER Section 4.1-1 (Proprietary Version)
Enclosure 5 – Response to RAI Question ER Section 9.2-1
Enclosure 6 – Response to RAI Question ER Section 9.2-2
Enclosure 7 – Response to RAI Question ER Section 3.4-1
Enclosure 8 – Response to RAI Question ER Section 10.4-1
Enclosure 9 – Affidavit to Withhold Enclosures 1, 2, and 4 from Public Disclosure
Enclosure 10 – Response to RAI Question ER Section 2.4-1 (Redacted Version)
Enclosure 11– Response to RAI Question ER Section 2.4-2 (Redacted Version)
Enclosure 12 – Response to RAI Question ER Section 4.1-1 (Redacted Version)

Commitments made by this letter: None

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 17th day of July, 2008
My registration number is 7173057 and my
Commission expires: August 31, 2012

Wanda K. Marshall
Notary Public

WANDA K. MARSHALL
Notary Public
Commonwealth of Virginia
7173057
My Commission Expires Aug 31, 2012

cc with Enclosures 3 and 5-12:

U. S. Nuclear Regulatory Commission, Region II
T. A. Kevern, NRC
J. T. Reece, NRC
A. Williamson, NRC
J. J. Debiec, ODEC
G. A. Zinke, NuStart/Entergy
T. L. Williamson, Entergy
R. Kingston, GEH
K. Ainger, Exelon

ENCLOSURE 3

Response to RAI Question ER Section 2.4-3

RAI Question ER Section 2.4-3

Provide a map of the habitat types along the Ladysmith transmission corridor, and the proportion (in percent) of each habitat type along the right-of-way.

Dominion Response

The Ladysmith corridor is described in the ESP Application, Rev 9, Part 3, "Applicant's Environmental Report," Section 2.2.2. Table 2.2-1 in that document provides specifics regarding corridor dimensions. The description of the affected environment in that document regarding this transmission corridor remains current.

As stated in the COLA ER Revision 0, Section 3.7.2, the PJM System Impact Study determined that a new 500 kV transmission line will be required from Unit 3 to the Ladysmith substation to ensure grid stability. The new line will run adjacent to the existing line in the Ladysmith corridor. Acquisition of additional right-of-way or clearing of the existing right-of-way will not be necessary. Land disturbances will be limited to construction equipment access and the installation of the tower footings.

A habitat map of the Ladysmith corridor is provided in Figure 1 of this enclosure. The background habitat mosaic of Figures 1 and 2 was created from the National Land Cover Dataset (NLCD). (See Dominion response to RAI Question ER Section 2.4-1 for additional information regarding NLCD.) The NCLD codes were used for mapping habitat types and to develop the enclosed figure. The corridor is 275 feet wide. The percent habitats that occur within 150 feet of either side of the centerline of the corridor are provided below (for a total width of 300 feet, or 25 feet wider than the corridor), and code definitions follow that.

NLCD Code	NLCD Code Description	No. of 30 m^2 Cells	Percent of Total Cells*
11	Open Water	82	4
21	Developed Open Space	2	<1
22	Developed Low Intensity	11	<1
23	Developed Medium Intensity	9	<1
24	Developed High Intensity	4	<1
31	Barren Land (rock/sand/clay)	75	4
41	Deciduous Forest	863	41
42	Evergreen Forest	401	19
81	Pasture/ Hay	346	16
82	Cultivated Crops	261	13
90	Woody Wetlands	9	<1
95	Emergent Herbaceous Woodlands	32	2

NLCD = National Land Cover Dataset developed by a consortium of federal agencies: US Geological Survey, US Environmental Protection Agency, National Oceanic and Atmospheric Administration, US Forest Service, NASA, Bureau of Land Management, LANDFIRE, Natural Resource Conservation Service, National Park Service, US Fish and Wildlife Service, Office of Surface Mining.

* Total does not equal 100 percent due to rounding

2001 NLCD Code Definitions

11. Open Water - All areas of open water, generally with less than 25% cover of vegetation or soil.

21. Developed, Open Space - Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

22. Developed, Low Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

23. Developed, Medium Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

24. Developed, High Intensity - Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

31. Barren Land (Rock/Sand/Clay) - Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

41. Deciduous Forest - Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75 percent of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest - Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75 percent of the tree species maintain their leaves all year. Canopy is never without green foliage.

81. Pasture/Hay - Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

82. Cultivated Crops - Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

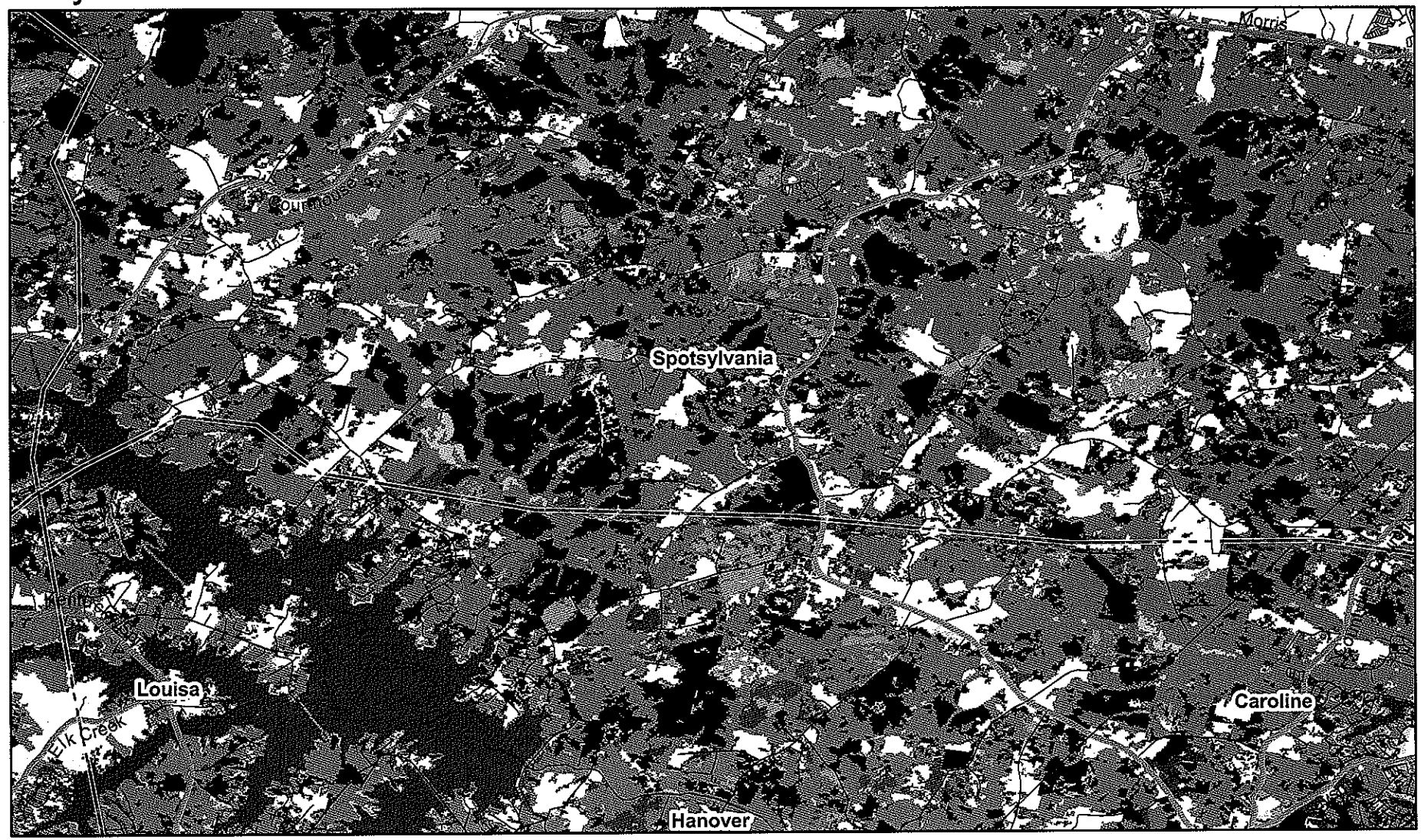
90. Woody Wetlands – Areas dominated by woody vegetation where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

95. Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for greater than 80 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Proposed COLA Revision

None.

RAI ER Section 2.4-3 Enclosure 3 - Figure 1
Ladysmith Transmission Line and Habitat



National Land Cover Data (2001)
- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Deciduous Forest
- Developed High Intensity
- Developed Low Intensity
- Developed Medium Intensity
- Developed Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Mixed Forest
- Open Water
- Pasture/Hay
- Woody Wetlands

- Transmission Line
- Transmission Line Buffer (275 ft)
- County
- Major Road
- Local Road

N

0 0.5 1 2 3 4 5 Miles

ENCLOSURE 5

Response to RAI Question ER Section 9.2-1

RAI Question ER Section 9.2-1

For an alternative coal fired plant, provide information normalized to 1500 MWe for annual coal consumption, quantities of solid waste products (ash and sludge) generated annually, percentage of solid waste products that can likely be recycled and for what uses, landfill acres needed to dispose of solid waste products over the life of the plant, annual emissions of mercury, annual emissions of PM_{10} and $PM_{2.5}$, and annual consumption of limestone used for control of air emissions.

Dominion Response

An alternative 1500 MWe coal-fired power plant would consume an estimated 3.3 to 4.2 million tons/year of coal. The table below provides information on the following parameters relevant to coal consumption:

- Annual coal combustion by-products (CCB)
- Recycled CCBs and their use in industry
- Estimated annual air emissions for mercury (Hg), PM_{10} and $PM_{2.5}$
- Estimated landfill capacity needed for disposal of CCBs assuming a 60-year plant life
- Annual consumption of limestone used for the environmental control of air emissions

The range for PM_{10} emissions and annual consumption of limestone used for control of air emissions in the table below were also provided in the COLA ER Revision 0, in Tables 9.2-4 and 9.2-7, respectively.

Coal Combustion By-Products and Air Emission Parameters (1500 MWe)

CCB	Annual CCB Quantity[1] (tons)	CCB Beneficial Reuse[2] (%)	CCB Industry Usage
Ash (recovered)	110,000 to 472,000	25	construction fill material, mine reclamation, raw material in manufacturing of cement products
Flue Gas Desulfurization (FGD) Gypsum	123,000 to 887,000	0	used as synthetic gypsum in wall board and cement manufacturing
Annual Air Emission Source		**Emission Rates**	
Mercury (Hg)		0.37 to 0.94 tons/year	
PM_{10}		940 to 2,130 tons/year	
$PM_{2.5}$		540 to 1,240 tons/year	
Lifetime Landfill Capacity Needed for Disposal of Recovered Ash[3] – 45 to 195 acres			
Lifetime Landfill Capacity Needed for Disposal of FGD Gypsum[3] – 45 to 326 acres			
Consumption of Limestone for Environmental Control of Air Emissions – 78,000 to 560,000 tons/year			

Notes:

1) The ranges above are based on a typical state-of-the-art supercritical coal-fired power plant burning Eastern Bituminous coal with sulfur content between 0.7% to 4.0% and typical heating values of 12,630 to 15,600 Btu/lb.
2) Industry usage for FGD gypsum is not as widespread as usage for ash, therefore, 0% is used as a conservative reuse value for FGD gypsum.
3) The lifetime of the plant is assumed to be 60 years.

Proposed COLA Revision

The table above will be included in COLA ER Revision 1.

ENCLOSURE 6

Response to RAI Question ER Section 9.2-2

RAI Question ER Section 9.2-2

For an alternative natural gas fired plant, provide information normalized to 1500 MWe for annual emissions of PM_{10} and $PM_{2.5}$, and the distance to the nearest natural gas pipeline to the North Anna Power Station (NAPS) site.

Dominion Response

The particulate distribution produced by combustion of natural gas are generally smaller than 2.5 microns in aerodynamic diameter, i.e., smaller than $PM_{2.5}$. Since all particulate matter from natural gas combustion is smaller than 2.5 microns in aerodynamic diameter, the values for PM_{10} and $PM_{2.5}$ are the same. This is confirmed by USEPA's FIRE database (http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main) which presents emission factors for natural gas-fired combustion turbines. The database shows the emission factors for "$PM_{2.5}$ primary" and "PM_{10} primary" are identical. Table 9.2-9 of the COLA ER Revision 0, estimates PM_{10} emissions at 455 tons/year. Therefore, PM_{10} and $PM_{2.5}$ emissions from an alternative 1500 MWe natural gas-fired plant are both estimated to be 455 tons/year.

The distance to the nearest natural gas supply pipeline from the North Anna Power Station site is approximately 13.2 miles due east.

Proposed COLA Revision

None

ENCLOSURE 7

Response to RAI Question ER Section 3.4-1

RAI Question ER Section 3.4-1

ER Section 3.4-1: To the extent information is available describe the Unit 3 Intake design, including the lagoon and any culverts through the coffer dam, and the new intake structure dimensions, the design flow velocity, the fish screens, and other features. Provide updated figures of the intake area (plan view), the planned intake structure, and flow path.

Dominion Response

The Unit 3 intake structure withdraws water from Lake Anna to supply the plant's water needs. It has three pump/screen bays and is designed to accommodate the following combination of pumps:

(1) Three 50% capacity make-up pumps to supply make-up water for the normal plant circulating water and service water cooling systems at a design flow rate of 2.23×10^4 gpm (49.6 cfs)
(2) Two 100% capacity station water pumps to deliver station water at a design flow rate of 750 gpm (1.7 cfs)
(3) Two fire water pumps to deliver fire protection water at a maximum design flow rate of 2130 gpm (4.7 cfs)
(4) Two 100% capacity screen wash pumps, installed in the screen well to clean the traveling water screens during operation of the intake pumps, at a design flow rate of 500 gpm (about 1.1 cfs). The screen wash flow will be recirculated back to intake flow upstream of the traveling water screens.

To protect the pumps from debris, the entrance opening of the intake structure is equipped with trash racks and raking mechanism. Downstream of the trash racks, there are three sets of dual flow traveling water screens, each with an 8-ft basket width and a 2 mm screen mesh size. The maximum flow-through velocity at the openings of the trash racks and the traveling water screens is designed to be less than 0.5 ft/sec. Figures 1a and 1b are schematic sketches that illustrate the principal hydraulic dimensions of the intake structure. Minor adjustments of the intake dimensions are expected to be necessary during detailed design stage to accommodate the size of equipment (pumps and screens) specified by the suppliers.

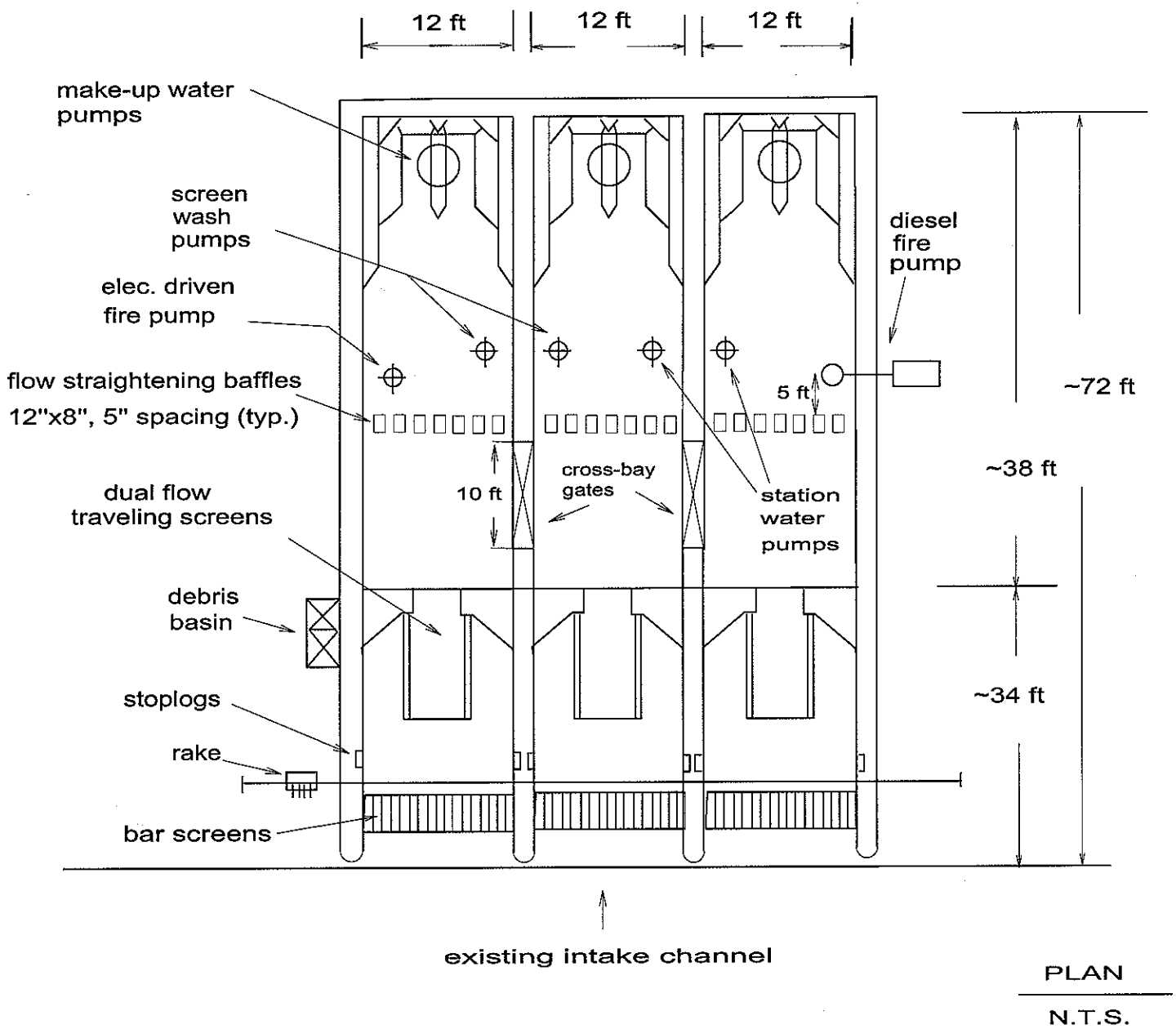
The intake structure is located at the end of a cove on the south shore of Lake Anna near Harris Creek and immediately west of the cove that houses the existing intake structure. The cove was originally planned for the intake of the abandoned Units 3 and 4. In the early 1980s, a cofferdam was installed across the cove to facilitate the construction of the now-abandoned intake tunnel. For the new Unit 3 intake, five box culverts of dimensions 10 ft x 12 ft, or equivalent, will be installed in the cofferdam to allow water from Lake Anna to flow through toward the Unit 3 intake via the approach channel. Figure 2 shows the location of the cofferdam and the culverts in relation to the intake structure. The general flow path of the intake flow is also shown in Figure 2.

Because of the limited quantity of water to be supplied from Lake Anna, no major modification to the existing shoreline or dredging in the approach channel is necessary. The approach channel has a typical side slope of 3:1 (horizontal to vertical) on both sides and a bottom width varying from about 500 feet at the lake end to 230 feet at the entrance to the screen well and pump bays. The invert elevation, i.e., bottom elevation,

of the channel is approximately 220 ft msl. The flow velocity in the approach channel is designed to be about 0.01 ft/sec, based on the design flow rate of the Unit 3 intake structure. The flow-through velocity at the culverts connecting Lake Anna and the intake channel is designed to be about 0.1 ft/sec, similar to the current velocity in Lake Anna, to minimize entrainment of debris, aquatic life, and sediment.

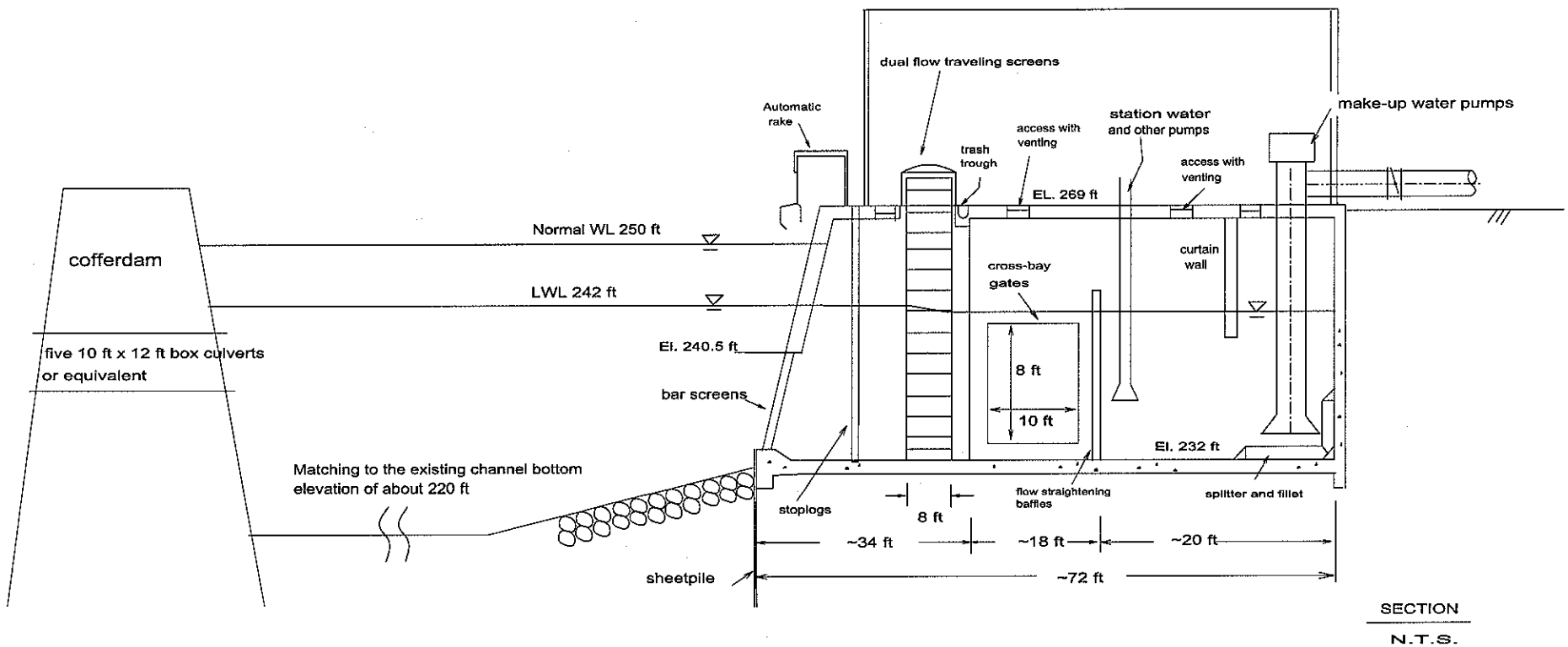
Proposed COLA Revision

None



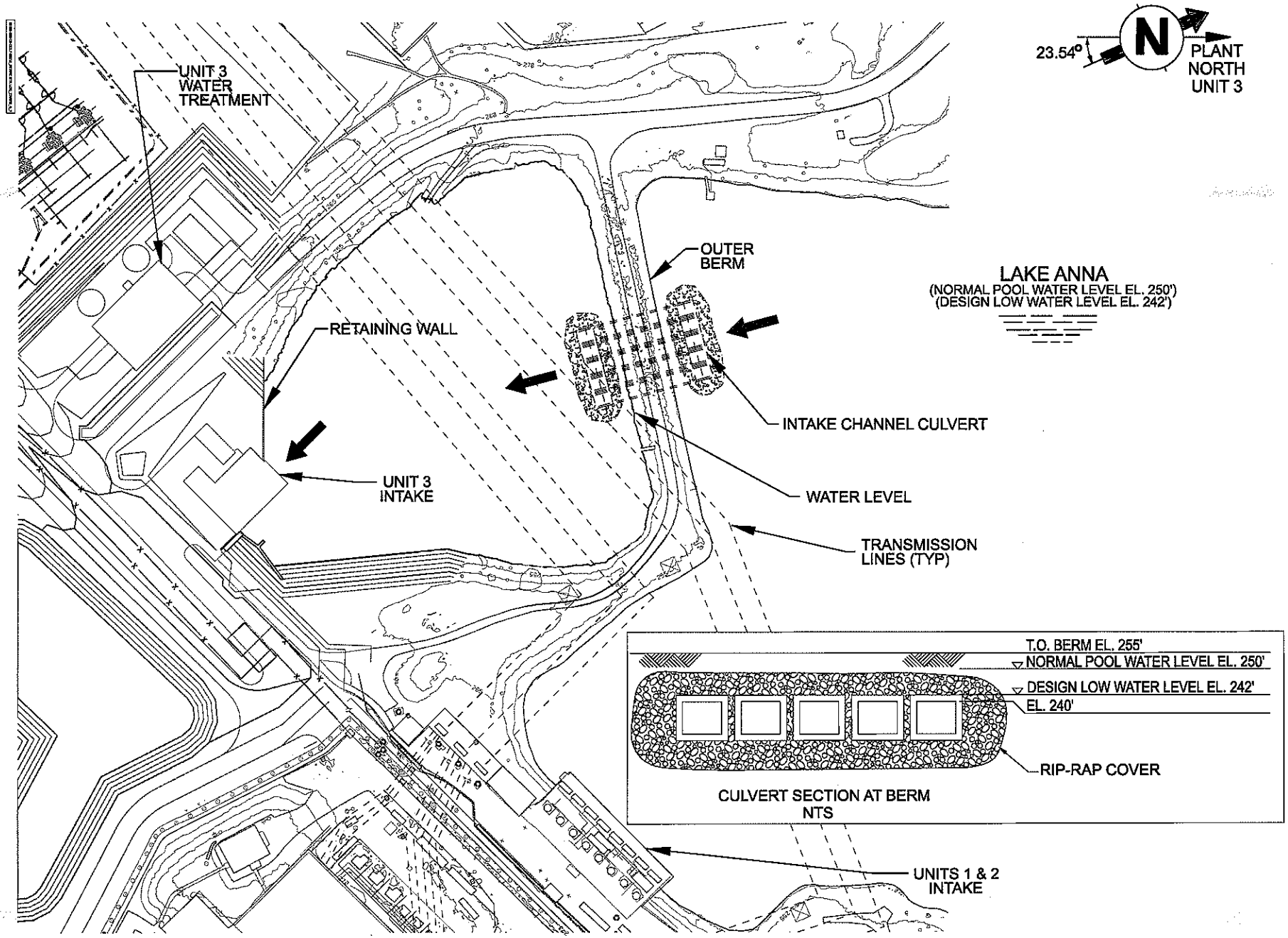
SCHEMATIC ARRANGEMENT OF NAPS UNIT 3 MAKE-UP WATER PUMP INTAKE

RAI ER Section 3.4-1 Figure 1a



SCHEMATIC ARRANGEMENT OF NAPS Unit 3 MAKE-UP WATER PUMP INTAKE

RAI ER Section 3.4-1 Figure 1b



AREA PLAN

RAI ER SECTION 3.4-1
FIGURE 2

ENCLOSURE 8

Response to RAI Question ER Section 10.4-1

RAI Question ER Section 10.4-1

Quantify the benefits shown in Table 10.4.1 and the costs shown in Table 10.4.2 in monetary or other appropriate the terms whenever practicable and determine their significance to the region. Estimate missing or un-quantified "internal" benefits such as the market value of net electrical generation of the proposed plant and external benefits such as local and regional environmental improvements. In considering costs, provide monetary estimates of missing internal costs, such as allowance for funds used during construction (unless they are already included in the overnight cost estimate already provided) and the estimated capital cost of added transmission lines to support the proposed project even if the lines are not paid for by the applicant. To the extent practicable, monetize significant external costs, such as the direct costs to the regional environment. In considering external costs, if practicable estimate the annualized monetary value of the external cost associated with the MODERATE hydrologic impacts during droughts, and describe or reference the method used to develop the cost data.

Dominion Response

Benefits

Dominion provided evaluation of monetary and non-monetary benefits of the proposed North Anna Unit 3 in COLA ER Revision 0, Chapter 8, Need for Power, and a summary of those benefits in Table 10.4-1. The internal benefits of Unit 3 are appropriately expressed in Table 10.4-1 in terms of the generating capacity that would be supplied to meet the need for power. Dominion is not aware of any internal benefits missing from this Table.

NRC precedent holds that placing a monetary value on the benefit of electricity is inappropriate. Additional explanation supporting this position is provided following the revision to Table 10.4-1 presented below.

Dominion is not aware of any external benefits missing from Table 10.4-1. However, Table 10.4-1 has been revised as shown below to further quantify the beneficial effects on regional productivity, including land use, hydrological, construction and operations workers, and socioeconomic benefits.

Table 10.4-1 Monetary and Non-Monetary Benefits of Proposed Unit 3

Category of Benefit	Description of Benefit
Net Electrical Generating Benefits	
Net Generating Capacity	~1,500 MWe
Electricity Generated	~12,000,000 MW-hrs (operating at 90% cap.)
Taxes and Revenue During Plant Operation Period (Transfer Payments – Not Independent Benefits)	
Annual State Taxes	NAPS Unit 3 -- $14.8 million.
Annual Property Taxes	NAPS Unit 3 -- $3.5 million.
Annual Sales Taxes	NAPS Unit 3 --` $24.2 million.

Effects on Regional Productivity	
Land Use	Co-location of additional generating capacity on land already designated as industrial use and dedicated to power generation results in no acres of land-use conversion, thus leaving other land for continued current use or conversion for other projects that would benefit the region's productivity.
Hydrological	Co-location of additional generating capacity on existing water source already used for power generation eliminates impacts to other water resources and watersheds. Annual minimum Lake Anna elevation will average 0.26 feet lower than existing conditions and 0.31 acres of non-tidal wetlands and 757 linear feet of stream bed are expected to be permanently disturbed for construction of Unit 3. Thus, the region's existing water resources and watersheds would remain largely as is which would conserve the resource or make it available for other uses deemed necessary for the region's productivity.
Construction Workers	Approximately 2,500 workers create an incremental increase of 1,550 indirect jobs, within the region for the duration of the construction period. The increase in population would result in positive impacts to the local economy. Peak construction workforce is estimated at 2,500 to 3,500.
Operational Workers	500 operations workers would create an additional 1,035 indirect permanent jobs within the region for a total of at least approximately 1,500 additional jobs for at least 40 years of plant operations. These people and their families would reside in the area, purchase homes, goods, and services, and pay property and sales taxes, increasing the economic base of the region.
Socioeconomics	Increased tax revenue from NAPS payments as well as property and sales taxes paid by workers supports improvements, expansions, or additions to public infrastructure and social services, making the region attractive for future growth and development. Influx of money from workers' wages spurs future growth and development in the private sector. Influx of money from worker's wages will be in addition to current tourist dollars because Lake Anna recreational opportunities will not be adversely affected by Unit 3. [The annual minimum Lake Anna elevation will average 0.26 feet lower than existing conditions and there will be indistinguishable biological impacts to the general aquatic community of the North Anna River and the striped bass spawning and early rearing areas of the Pamunkey River.]
Technical and Other Non-Monetary Benefits	
Fuel Diversity	Reduces exposure to supply and price risk associated with reliance on any single fuel source.
Price Volatility	Dampens potential for fuel price volatility.
Fossil Fuel Supplies	Offsets usage of finite fossil fuel supplies.

Electrical Reliability	Enhances electrical reliability.
Emissions Reduction	Significant beneficial impact in terms of avoidance of air emissions as shown in Table 8.0-2.
Carbon Dioxide Emissions	Baseload generation with no carbon dioxide emissions.
Wastes	Compared with fossil-fueled plants, nuclear plants produce less nonradioactive waste products. A comparable coal-fired plant would generate 5.6 to 31.9 tons of ash per hour.

NRC precedent holds that placing a monetary value on the benefit of electricity is inappropriate. In Vermont Yankee Nuclear Power Corp. (Vermont Yankee Atomic Power Station), ALAB-179, 7 A.E.C. 159, 171-176 (1974), the Atomic Safety and Licensing Appeal Board vacated a decision in which a dollar value had been assigned to the benefit of electricity by multiplying the energy production by an average retail rate.

The Appeal Board held:

> We have concluded that the placing of a monetary value on the benefit of electricity is not mandated either by NEPA or by the Commission's regulations, and that attempting such a task serves no useful purpose. If anything, the appearance of precisions resulting from such an exercise tends to divert scrutiny from the difficult judgmental decisions performing an accurate cost-benefit analysis and, specifically, in determining whether there is a genuine need for the facility.

The Appeal Board went on to observe:

> The value to society derived from being able to meet a real demand for electricity is not measurable in dollars. If the electricity to be produced by a proposed project is genuinely needed,...then the societal benefits achieved by having that electricity available is immeasurable.

The Appeal Board concluded:

> [A]n overall balancing of costs and benefits occurs, but it is not necessary for this purpose to place a dollar value on the benefits of the electricity to be produced. Instead, on a qualitative basis, the costs associated with the optimum alternative selected must be balanced against the benefit achieved by meeting the degree of demand anticipated. To be sure, if the facility will satisfy a real demand for electricity that cannot be met by the purchase of power from other systems, then the result of the balancing may be a foregone conclusion in that, as indicated above, the alternative of not meeting the demand is unthinkable.

Subsequent NRC decisions have repeated this admonition that the placing of a monetary value on the benefit of electricity is inappropriate. Illinois Power Co. (Clinton Power Station, Units 1 and 2), ALAB-340, 4 N.R.C. 27, 28, 46-47 (1976); Niagara Mohawk Power Corp. (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 N.R.C. 347, 368 (1975).

Internal and External Costs

Internal Costs

The cost of transmission improvements is provided in Part 1 of the COLA (at p. 13). As reflected in Part 1 of the COLA, the $3,000 – 4,000/kWe estimate of the overnight cost of Unit 3 includes these transmission costs. The additional transmission line that will be installed along the NAPS-to-Ladysmith corridor, and the other system reinforcements described in section 3.7 of the ER, are improvements to DVP facilities and part of Owner's Costs comprising part of the overnight estimate. Therefore, there are no missing transmission costs.

The $3,000/kw or $4,000/kw overnight cost estimate in Table 10.4-2 can be translated into a total cost that considers both escalation over the construction period and financing costs. The table below first escalates the $3,000/kw or $4,000/kw overnight cost estimate over Dominion's projected construction (spending) schedule, to arrive at a nominal capital expenditure value. It then adds estimated financing costs which contain AFUDC and interest payments commensurate with a reasonable debt to capital structure for the project.

$3,000/kw	(millions)	**$4,000/kw**	(millions)
Nominal Capital	5400	Nominal Capital	7200
Financing Costs	1100	Financing Costs	1400
Total	**6500**	**Total**	**8600**

External Costs

While a monetized valuation of environmental impacts is neither required nor appropriate (as explained at the end of this response), Dominion has revised Table 10.4-2 to describe more clearly the costs of the proposed action and to provide further quantification where practical. Additional explanation is provided in the following revision to Table 10.4-2 to expand the discussion of external costs associated with

- Land and land use
- Hydrological and water use
- Terrestrial and aquatic species
- Radioactive effluents and emissions; Radioactive dose
- Hazardous and radioactive water
- Meteorological (*new category*)
- Noise (*new category*)
- Non-radiological human health (*new category*)
- Materials, energy, and uranium
- Decommissioning (*new category*)

The category, potential nuclear accident, was removed.

Table 10.4-2 Internal and External Costs of Proposed Unit 3	
Category of Cost	Description of Cost
Internal Costs	
Construction (Overnight Cost)	$3,000 to $4,000 per kW
Operation	$6.83 per MW-hr for O&M $4.64 per MW-hr for fuel cycle
Decommissioning (NRC Minimum)	$518,033,205
External Costs	
Land and Land Use	SMALL. Unit 3 would occupy approximately 120 acres (49 ha.) of the approximately 1043 acres (422 ha.) of the existing NAPS site. Unit 3 would require no acres for new transmission corridors (existing transmission corridor would be used for the new transmission line).
Hydrological and Water Use	SMALL for most years; MODERATE during drought years. There are some costs associated with providing water for various needs during construction and operation. Cooling water would be taken from Lake Anna at the rate of 15,376 gpm (Maximum Water Conservation [MWC] mode) or 22,260 gpm (Energy Conservation [EC] mode). The blowdown return to the WHTF would be 3,837 gpm in the MWC mode and 5,558 gpm in the EC mode. The cooling water consumption rate (withdrawal minus blowdown) would be 11,539 gpm in the MWC mode and 16,702 gpm in the EC mode. The effect of consumption of cooling water is relatively small. Small concentrations of hazardous chemicals and radioactive effluents would be introduced into Lake Anna. Concentrations of chemicals and solids would be below applicable VPDES permit limits at the point of compliance. Blowdown discharge would be at a maximum temperature of 100° F and at a maximum instantaneous rate of 12.4 cfs. The small increase in velocity and volume would not increase scour or erosion problems. There would be no perceptible impact on the water temperature (estimated temperature increase attributable to Unit 3 would be a maximum of one-tenth of a degree Fahrenheit) or stratification in Lake Anna. Annual minimum lake elevations with Unit 3 will be 0.01 to 0.89 feet lower than existing conditions, with this difference averaging 0.26 feet.
Terrestrial and Aquatic Species	SMALL. Some cost to wildlife due to mortality during construction operations is anticipated. However, these costs do not affect long term wildlife populations. Construction activities would impact North Anna Reservoir due to increased turbidity and the potential for sedimentation as a result of the modification of the cofferdam. Construction would permanently disturb approximately 0.31

	acres of non-tidal wetlands and 757 linear feet of ephemeral streams. No federal or state-listed protected fish species occur in Lake Anna, its tributary streams, or North Anna River. No critical habitats for aquatic or terrestrial species occur in the area. Wildlife mortality, including aquatic biota, during operations is expected to be minimal. The addition of Unit 3 would increase total impingement for three units by <3%. A new CWIS for Unit 3 in combination with the current once-through system for Units 1 and 2 would remove approximately the following portions of Lake Anna's standing crop by impingement: 0.33 percent by weight of gizzard shad annually, 3.9 percent of black crappie, just over 1.4 percent of yellow perch, 0.02 percent of bluegill, and 0.1 percent of white perch. The addition of Unit 3 would increase total estimated entrainment by <3%. The Lake Anna fishes are prolific, exhibit high reproductive potential, and have compensatory responses that would offset these losses. Lake Anna minimal average lake level during non-drought years would be 248.6 ft msl. There will be no measurable biological impacts to the aquatic community of the North Anna River or the striped bass spawning and early rearing areas of the Pamunkey River from reductions in freshwater inflows due to the additional evaporative water loss from a new Unit 3. The increase in discharge flow would range from 0.2 percent (the MWC mode maximum blowdown rate of 3,844 gpm added to two-unit, open-cycle flow of approximately 1,900,000 gpm) to 0.6 percent (maximum blowdown rate of 5565 gpm added to one-unit, open-cycle flow of approximately 950,000 gpm). Discharge flow would range from 3,844 gpm (Units 1 and 2 off-line; Unit 3 operating and discharging blowdown at maximum MWC mode rate) to 1,905,565 gpm (Units 1, 2, and 3 operating; Unit 3 discharging blowdown at maximum rate). Blowdown discharge's velocity would have negligible impact. Concentrations of chemicals and solids would be below applicable VPDES permit limits at the point of compliance and would be have a small impact on aquatic ecology. There would be no perceptible impact on the temperature (estimated temperature increase attributable to Unit 3 would be a maximum of one-tenth of a degree Fahrenheit at the end of the discharge canal) and there would be no impact on aquatic communities of Lake Anna.
Radioactive Effluents and Emissions, Radioactive dose	SMALL. Radioactive waste would be generated. The plant would produce radioactive air emissions. Low concentrations of radioactive liquid effluents would be introduced into Lake Anna. The estimated radioactive doses from all sources would be as follows: occupational dose – 60.4 person-rem/yr total body dose to the MEI - 1.7 mrem/yr collective total body dose to population within 50 miles – 7 person-rem/yr dose to biota – 3.3 to 21 mrad/yr (liquid), 17 mrad/yr (gaseous).
Hazardous and Radioactive Waste	SMALL. Storage, treatment, and disposal of high-level radioactive spent nuclear fuel would occur, with a commitment of underground geological resources for disposal of radioactive spent fuel. Generation of 16,764 cu. ft. /yr of solid radioactive wastes with activity of

	1,718 Curies. Expected generation of 15 ft^3/yr mixed waste.
Air Emissions	SMALL. Air emissions from diesel generators, auxiliary boilers and equipment, and vehicles that have a small impact on workers and local residents would occur. Cooling tower drift would deposit some salt on the immediately surrounding vicinity, but the level is unlikely to result in any measurable impact on vegetation. Cooling tower atmospheric plume discharge would be abated by cooling tower design.
Meteorological	SMALL. Heated air from Unit 3's cooling towers would not increase the atmospheric and ground temperature beyond the NAPS site boundary. Blowdown from Unit 3 to the Waste Heat Treatment Facility (WHTF) would lead to negligible additional steam fog. Cooling tower atmospheric plume discharge abated with design.
Noise	SMALL. Construction activities would have a noise level of 60 – 80 dBA at 120 meters (400 feet) from the Unit 3 construction site. Noise levels from cooling tower operation would be <65dBA at the EAB. Other noises would be as they are currently for Units 1 and 2.
Non-radiological Human Health	SMALL. Estimated temperature increase attributable to Unit 3 would be a maximum of one-tenth of a degree Fahrenheit at the end of the discharge canal) which would dissipate to an undetectable level within a short distance of travel in the WHTF. Further, the blowdown from the Unit 3 wet cooling towers would contain a biocide. Therefore, Unit 3 would not contribute to an environment conducive to the growth of thermophilic organisms in the WHTF. Unit 3's sewage would be treated in a new sewage treatment facility and the discharge would meet local and state regulations for effluent quality in accordance with the VPDES permit. Noise levels from cooling tower operation would be <65dBA at the EAB.
Socioeconomics	SMALL, with exception that transportation impacts would be MODERATE. Peak construction workforce is estimated at 2,500 to 3,500. The temporary in-migration to the region of interest is estimated to be 20% of the construction workforce. Traffic during peak employment of 3,500 construction workers would be divided into shifts; the current existing workforce of approximately 1,000 would continue to be divided into two 12-hour shifts, so the shift changes would be staggered. Using an average of 1.8 persons per vehicle, the number of vehicles attributable to NAPS during the peak hour of traffic (shift change for construction workforce) would be 1,950 vehicles and the total traffic attributable to NAPS would be 2,500 vehicles per day. This increase in traffic could increase congestion from a Level of Service (LOS) of B to a LOS of D, even with the application of mitigation measures. During outages with

	an additional 1,000 outage workers on two 12-hour shifts that also would be staggered, the number of vehicles attributable to NAPS during the peak hour of traffic would continue to be the 1,950 vehicles associated with the construction workforce shift change. However, the total traffic attributable to NAPS during an outage day would be 3,100 vehicles (assuming 1.8 persons per vehicle for the outage workers as well). Operation of Unit 3 would require approximately 500 workers or an increase in the population in the region of interest by 2,000, assuming each new employee represents a family of four and relocates into the region. This increased population due the operations workers and their families would be a small fraction of the expected population growth in the vicinity and region around the NAPS site and therefore no unforeseen demands for educational, medical, fire, or police services would result from the operation of Unit 3. The visual impact study indicates that the visual impact to the public from Unit 3 would be similar to the visual impact from the existing units and small.
Materials, Energy, and Uranium	SMALL. There would be irreversible and irretrievable commitments of materials and energy, including uranium. Construction of Unit 3 would require an estimated 12,239 cubic yards of concrete for the reactor building, 3,107 tons of rebar for the reactor building, 6,500,000 linear feet of cable, and 275,000 linear feet of piping greater than 2.5 inches in diameter.
Decommissioning	SMALL. The estimated radioactive doses would be substantially less than the estimated doses for operations.

Courts have held that NEPA does not require a mathematically expressed cost benefit analysis. Sierra Club v. Stamm, 507 F.2d 788, 794 (10th Cir. 1974) ("[NEPA] does not require the fixing of a dollar figure to either environmental losses or benefits."); Trout Unlimited v. Morton, 509 F.2d 1276, 1286 (9th Cir. 1974) (holding that NEPA does not require a "formal and mathematically expressed cost-benefit analysis" because such a calculation would be highly subjective and the final decision is not wholly a mathematical determination); Sierra Club v. Morton, 510 F.2d 813, 827 (5th Cir. 1975) ("NEPA does not demand that every federal decision be verified by reduction to mathematical absolutes for reduction to a precise formula") quoting; Sierra Club v. Lynn, 502 F.2d 43, 61 (5th Cir. 1974);. Matsumoto v. Brinegar, 568 F.2d 1289, 1291 (9th Cir. 1978) (agreeing that a cost-benefit "formalized and quantified in dollars" was not required under NEPA); Environmental Defense Fund, Inc. v. Costle, 439 F. Supp. 980, 993 (E.D.N.Y. 1977) ("We find no requirement in NEPA for the placement of dollar values on environmental impacts. ..."); Environmental Defense Fund v. Tenn. Valley Authority, 371 F. Supp. 1004, 1013 (E.D. Tenn. 1973), aff'd, 492 F.2d 466 (6th Cir. 1974) ("[NEPA does not require an agency] to compute in dollar figures every environmental loss). See also Daly v. Volpe, 514 F.2d 1106, 1112 (9th Cir. 1975); Suburban O'Hare Com. v. Dole, 787 F.2d 186, 191 n.8 (7th Cir.), cert. denied, 479 U.S. 847 (1986) ("A cost-benefit analysis is not required of an EIS. . . .The statement is sufficient if it gives the decisionmaker and other readers enough detail concerning all of these costs and benefits to permit reasoned evaluation and decision."), citing South Louisiana Environmental Council v. Sand, 629 F.2d 1005, 1013, n.7 (5th Cir. 1980); Sierra Club v. Sigler, 695 F.2d 957, 977 (5th Cir. 1983).

Consistent with this precedent, the CEQ regulations too provide that the weighing of various alternatives need not be displayed in a monetary cost-benefit analysis and should not be

when there are important qualitative considerations. 40 C.F.R. § 1502.23. A COLA clearly involves important qualitative considerations. As discussed above, NRC precedent holds that, where there is an established need for power, the benefit of the electricity provided by the proposed plant is "immeasurable." Similarly, the benefit of reduced emissions and maintaining fuel diversity are important qualitative considerations. With respect to the environmental impacts, an example of an important qualitative decision would be land use. Co-location of additional generating capacity on land already designated as industrial use and dedicated to power generation results in no acres of land-use conversion, thus leaving other land for continued current use or conversion for other projects that would benefit the region's productivity.

As a general matter, assigning monetary values to environmental impacts is often controversial and unproductive. Such values are highly subjective and tend to suggest a precision that is simply unwarranted. Consequently, such an undertaking simply injects unnecessary controversy and risk of disputes into the NEPA review. Since NRC precedents hold that a dollar value should not be placed on the benefit of the electricity to be produced, no useful purpose would be served by trying to place monetary values on the environmental impacts.

While a monetized valuation of environmental impacts is thus neither required nor appropriate, Dominion has revised Table 10.4-2 to describe more clearly the costs of the proposed action and to provide further quantification where practical.

Proposed COLA Revision

Table 10.4-1 and Table 10.4-2 will be revised as shown in the above response.

ENCLOSURE 9

Affidavit for Withholding Proprietary Information In Accordance with 10 CFR 2.390

Commonwealth of Virginia)
) ss.
County of Henrico)

10 C.F.R. § 2.390
AFFIDAVIT OF EUGENE S. GRECHECK

I, Eugene S. Grecheck, Vice President, Nuclear Development of Virginia Electric & Power Company, dba Dominion Virginia Power ("Dominion"), being duly sworn according to law, depose and state the following:

1. I am authorized to execute this affidavit on behalf of Dominion.

2. Dominion's responses to NRC Requests for Additional Information ("RAI") designated as ER 2.4-1, 2.4-2, and 4.1-1 in the North Anna Unit 3 COL proceeding contain certain proprietary commercial information that should be held in confidence by the NRC pursuant to 10 C.F.R. §§ 9.17(a)(4) and 2.390(a)(4). The proprietary commercial information is identified in these RAI responses by bracketed text and marginal annotations. This information should be withheld from public disclosure because:

a) The information is and has been held in confidence by Dominion.

b) This information is of a type that is held in confidence by Dominion, and there is a rational basis for doing so because the information relates to ongoing, sensitive commercial negotiations.

c) This information is being transmitted to the NRC in confidence.

d) This information is not available in public sources and could not be gathered readily from other publicly available information.

e) Public disclosure of this information would create substantial harm to the Dominion by potentially disrupting the commercial negotiations.

3. Accordingly, Dominion requests that the designated proprietary information in the RAI responses identified above be withheld from public disclosure pursuant to 10 C.F.R. §§ 2.390(a)(4) and 9.17(a)(4).

Further, affiant sayeth naught.

Eugene S. Grecheck
Vice President, Nuclear Development

Subscribed and sworn to before me
this 17th day of July, 2008.
Wanda K. Marshall
Notary Public #7173057

My commission expires August 31, 2012

WANDA K. MARSHALL
Notary Public
Commonwealth of Virginia
7173057
My Commission Expires Aug 31, 2012

ENCLOSURE 10

Response to RAI Question ER Section 2.4-1

[Redacted Version]

RAI Question ER Section 2.4-1

Provide updated accounting of habitat types within the construction footprint, the total size of the footprint, and the number of acres of each habitat type within the footprint. Describe the proportion that will be permanently and temporarily impacted by habitat type. Provide an overlay of the construction footprint on a habitat map of the site.

Dominion Response

The Environmental Report in the ESP proceeding identified the ESP Site as the area in which Unit 3 facilities and construction support facilities and activities (e.g. batch plant, laydown areas, etc.) would be located. [

]

Dominion has also identified some additions or modifications to facilities supporting Units 1 and 2 that are necessary to maintain the separate operations of the existing units. These activities are outside the ESP Site and will be described in a later update. Finally, as indicated in the COLA-ER, an additional transmission line will be added along the NAPS-Ladysmith corridor. None of these areas are included in the discussion of the "construction footprint" below.

The portion of NAPS on which Unit 3 will be located remains the area previously described as the ESP Site, as stated in Section 1.1.2 of the COLA-ER. This area is approximately 300 acres. During the ESP proceeding, Dominion expected that 80 acres of the ESP Site would be used for temporary construction facilities. Currently, Dominion expects that 90 acres of this land plus 510,000 square feet of office, warehouse, and support shop space within the 300-acre ESP Site area would be used for temporary construction facilities. Approximately 120 acres would be affected on a long-term basis by construction of permanent facilities.

A habitat map of this area is provided as Figure 1 of this enclosure. Figure 2 of this enclosure provides an overlay of this area on a habitat map of the site.

The background habitat mosaic shown in Figures 1 and 2 was created from the NLCD[1]. NLCD is the product of the Multi-Resolution Interagency Land Characteristics Consortium (MRLC), which is the collaboration of several federal agencies to provide digital land cover and ancillary data of the entire United States.

NLCD is a land-cover database whose primary sources are Landsat Thematic Mapper (TM) data. The TM data are compiled into a mosaic using algorithms specified by the MRLC, geo-referenced, and interpreted and labeled using National High Altitude Photography Program aerial photographs. Spatial modeling and ancillary spatial data layers (e.g., elevation, population, land use, wetlands) further refine the classifications.

[1] NLCD = National Land Cover Dataset developed by a consortium of federal agencies: US Geological Survey, US Environmental Protection Agency, National Oceanic and Atmospheric Administration, US Forest Service, NASA, Bureau of Land Management, LANDFIRE, Natural Resource Conservation Service, National Park Service, US Fish and Wildlife Service, Office of Surface Mining.

Many individual clusters resemble two or more land classifications. Models based on a series of logical condition statements further refine the classifications. As noted in Vogelmann et al[2]: "[M]any bare areas (especially clear-cuts and quarries) and the 'other grass' category (i.e., parks, golf courses, and large lawns) are spectrally similar to other land cover classes and consequently are difficult to accurately classify using spectral data alone."

Based on a review by biologists familiar with the NAPS site of the habitat map generated with the NLCD, it appears that many of the mown areas on the site are incorrectly classified by this mapping program as pasture/hay or cultivated crops. See for example, the "cultivated crops" and "pasture/hay" classifications under the transmission lines, adjacent to the Independent Spent Fuel Storage Installation, and at the location of the primary meteorological tower on Figure 2. These are actually large swaths of lawn or mown vegetation.

The National Land Cover Dataset (NLCD) codes were used for mapping habitat types and to develop the enclosed figures. The percent habitat types in the 300-acre area are provided below, followed by the code definitions.

NLCD Code	NLCD Code Description	No. of 30 m^2 Cells	Percent of Total Cells
21	Developed Open Space	21	2
22	Developed Low Intensity	56	4
23	Developed Medium Intensity	83	6
24	Developed High Intensity	71	5
31	Barren Land (rock/clay/sand)	215	16
41	Deciduous Forest	350	25
42	Evergreen Forest	210	15
81	Pasture/ Hay	55	4
82	Cultivated Crops	205	15
90	Woody Wetlands	36	3
95	Emergent Herbaceous Wetlands	75	5

NLCD code definitions are presented below.

2001 NLCD Code Definitions

21. Developed, Open Space - Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

[2] Vogelmann, J.E., T.L. Sohl, P.V. Campbell, and D.M. Shaw. 1998. Regional Land Cover Characterization Using Landsat Thematic Mapper Data and Ancillary Data Sources. Environmental Monitoring and Assessment 51: 415 - 428.

22. Developed, Low Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

23. Developed, Medium Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

24. Developed, High Intensity - Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

31. Barren Land (Rock/Sand/Clay) - Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

41. Deciduous Forest - Areas dominated by trees generally greater than 5 meters tall, and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest - Areas dominated by trees generally greater than 5 meters tall, and greater than 20 percent of total vegetation cover. More than 75 percent of the tree species maintain their leaves all year. Canopy is never without green foliage.

81. Pasture/Hay - Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 percent of total vegetation.

82. Cultivated Crops - Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

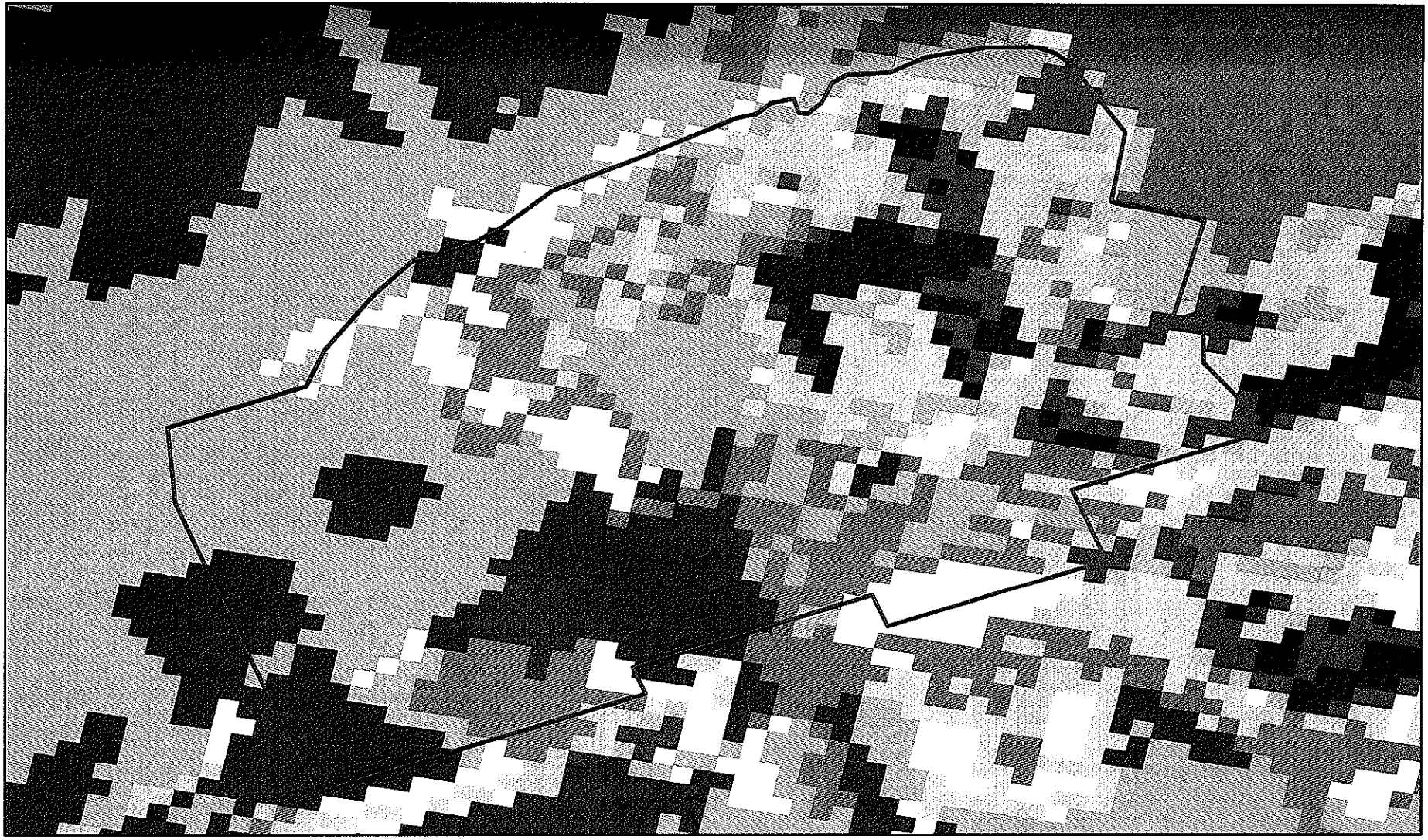
90. Woody Wetlands – Areas dominated by woody vegetation where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

95. Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for greater than 80 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Proposed COLA Revision

None.

RAI ER Section 2.4-1 Enclosure 1 - Figure 1
Construction Footprint and Habitat



Existing Construction Footprint

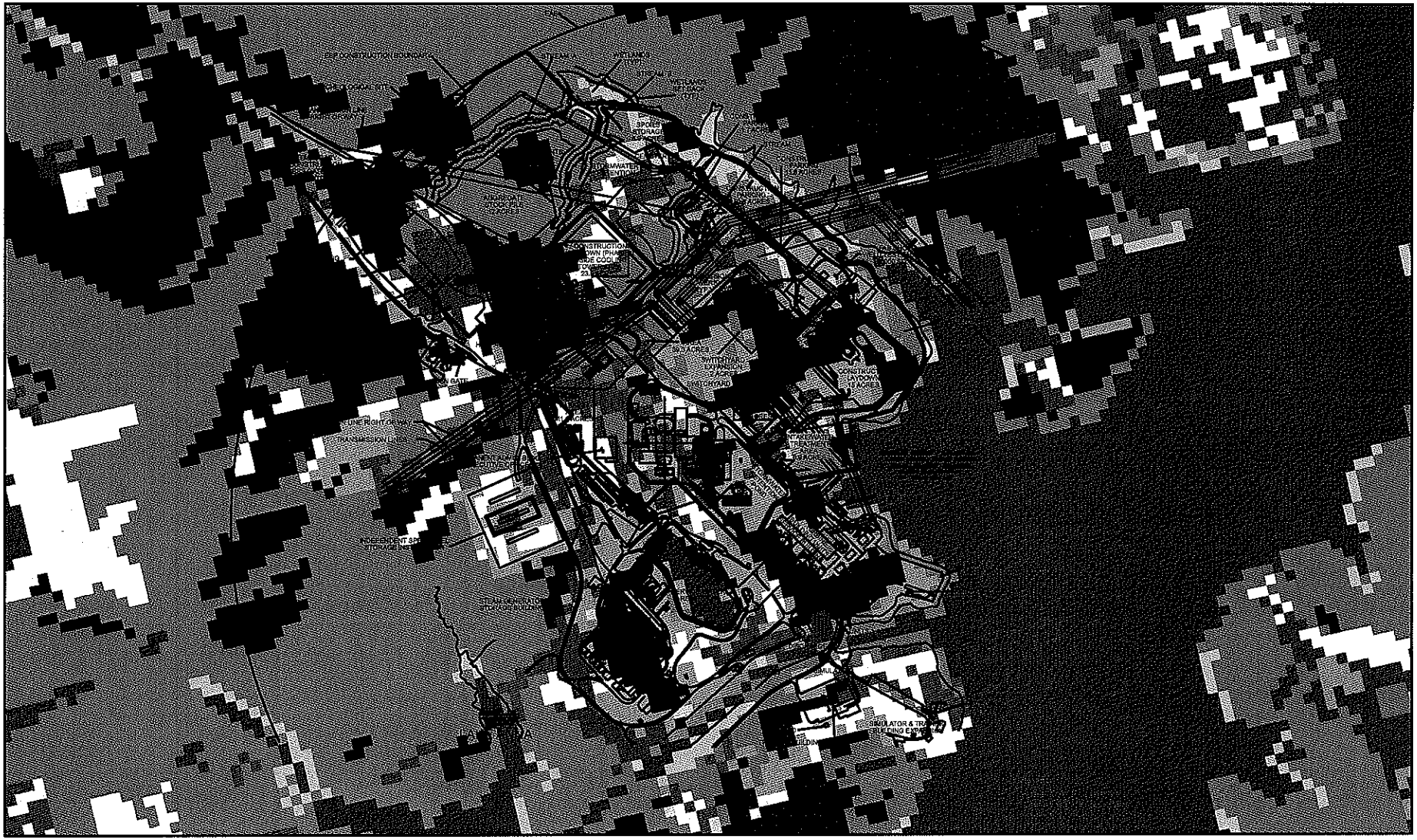
National Land Cover Data (2001)

- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Deciduous Forest
- Developed High Intensity
- Developed Low Intensity
- Developed Medium Intensity
- Developed Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Mixed Forest
- Open Water
- Pasture/Hay
- Woody Wetlands

N

0 1,000 2,000 Feet

RAI ER Section 2.4-1 Enclosure 1 - Figure 2
Site Utilization and Habitat



Site Layout
Existing Construction Footprint

National Land Cover Data (2001)

Barren Land (Rock/Sand/Clay)
Cultivated Crops
Deciduous Forest
Developed High Intensity
Developed Low Intensity
Developed Medium Intensity
Developed Open Space
Emergent Herbaceous Wetlands
Evergreen Forest
Mixed Forest
Open Water
Pasture/Hay
Woody Wetlands

N

0 625 1,250 2,500 3,750 5,000 Feet

ENCLOSURE 11

Response to RAI Question ER Section 2.4-2

[Redacted Version]

RAI Question ER Section 2.4-2

Provide documentation of the latest information on site wetland and stream evaluation. Confirm the values of 1.57 acres of non-tidal wetlands and 3597 feet of stream bed that are expected to be permanently disturbed. If these values are incorrect please provide the correct values. Describe the mitigation methods that are being considered and or will be employed and the U.S. Army Corp of Engineers/ Virginia Department of Environmental Quality (ACOE/VDEQ) interaction that support the mitigation decisions.

Dominion Response

A stormwater pond arrangement currently located in the cooling tower area has been re-designed from a previous two-pond configuration to a single-pond configuration (see RAI ER 2.4-2 Figure 1). This has been done in conjunction with a Joint Permit Application currently planned for submittal to the Virginia Department of Environmental Quality (VDEQ) and the U.S. Army Corps of Engineers (USACE) in the fall of 2008. This revised design would reduce the wetland/stream bed impact within the Unit 3 site from 1.57 acres to 0.31 acres of non-tidal wetlands, and from 3,597 linear feet to 757 linear feet of stream bed expected to be permanently disturbed.

Dominion has identified certain modifications and additions to the existing units' site to maintain the separate operations of the existing units. [

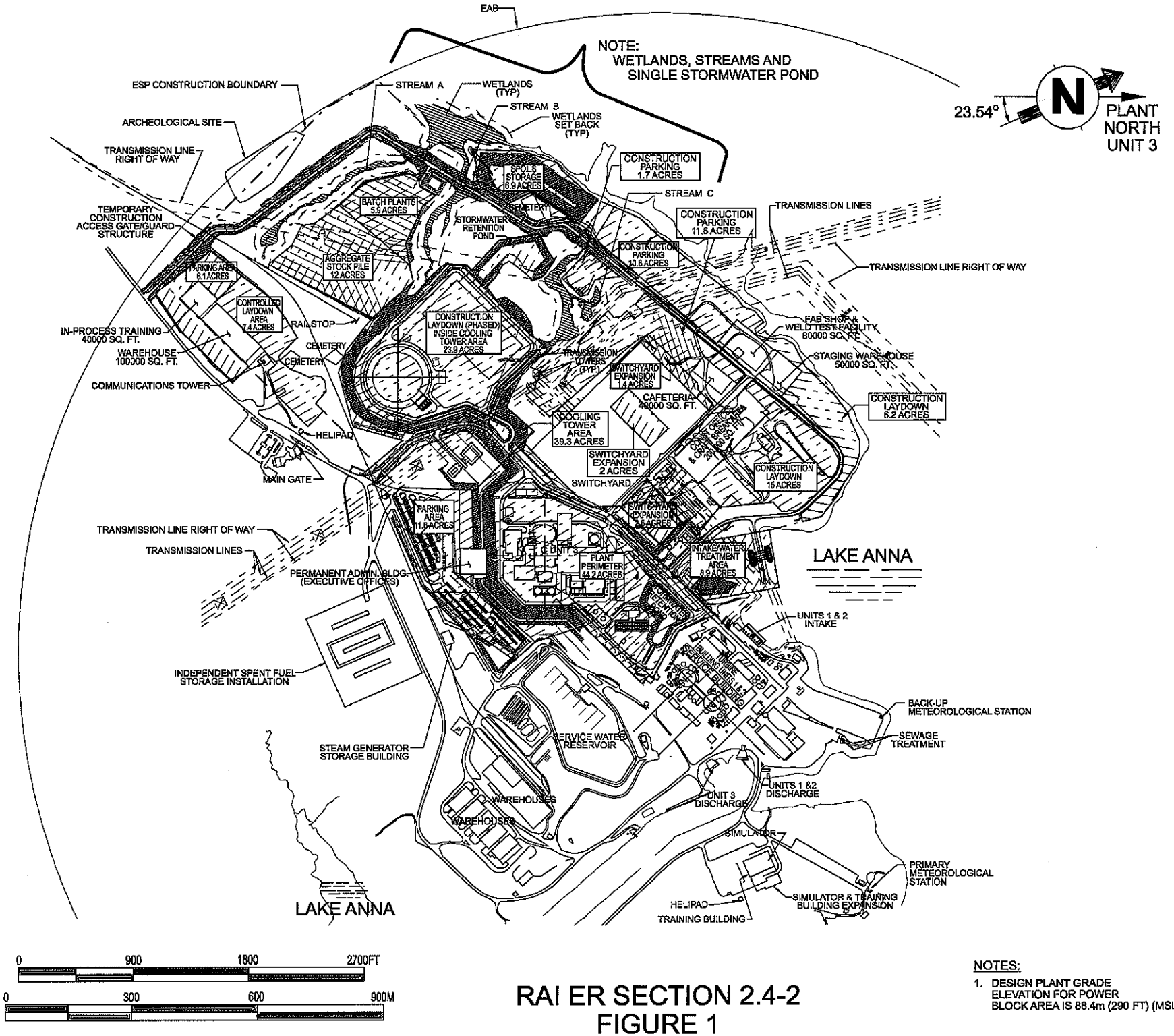
] Delineation of additional wetlands that might be affected and discussions with the USACE are ongoing.

Dominion is evaluating its options to mitigate for wetland and stream losses, which could include the purchase of wetland and stream credits through an approved mitigation bank, and supplemented by on-site stream preservation through the establishment of conservation easements. This approach has been discussed with the appropriate regulatory agencies (VDEQ and USACE). In joint agency meetings, Dominion, VDEQ and USACE have discussed the potential impacts associated with construction of the cooling towers, stormwater pond, and road crossing, and have worked interactively to reduce impacts on aquatic resources. Dominion has revised the site layout as described above based on agency feedback, and this resulted in the reduced acreage of non-tidal wetlands impact and reduced linear footage of stream impacts.

The Joint Permit Application being prepared will include a mitigation plan for the impacts which cannot be avoided.

Proposed COLA Revision

None.



RAI ER SECTION 2.4-2
FIGURE 1

NOTES:

1. DESIGN PLANT GRADE ELEVATION FOR POWER BLOCK AREA IS 88.4m (290 FT) (MSL)

ENCLOSURE 12

Response to RAI Question ER Section 4.1-1

[Redacted Version]

RAI Question ER Section 4.1-1

Provide a USGS 7.5 minute map with construction boundaries (including lay down areas) and cultural survey areas.

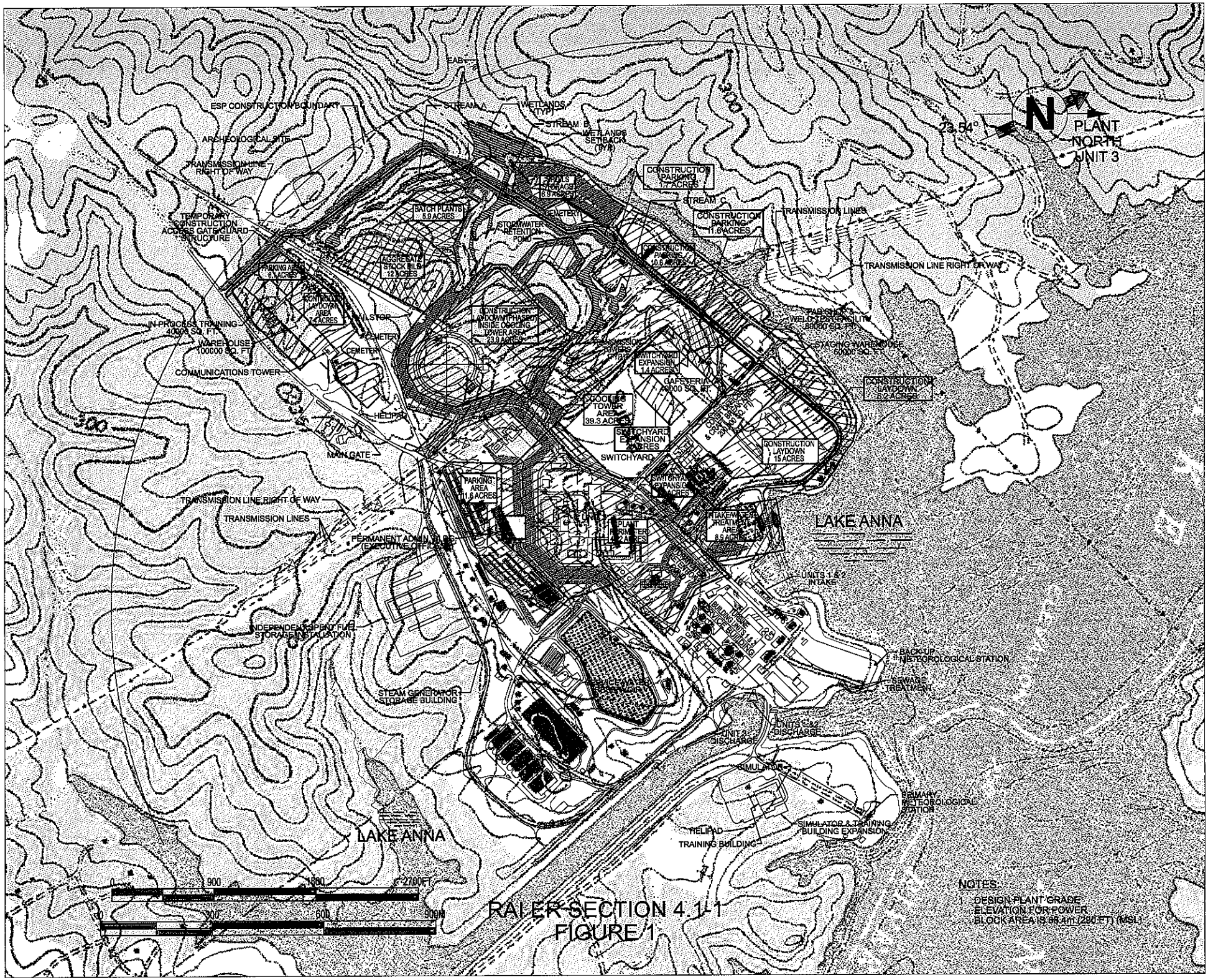
Dominion Response

The enclosed two figures provide the information requested. Figure 1 is a "zoom-in" of the North Anna site overlaid on a USGS contour map, fit to better show construction and cultural resources areas. Figure 2 is the full 7.5 minute USGS Lake Anna West Quadrangle map with the Figure 1 overlay. Please note that the "construction boundaries" shown on this figure only delimit the on-site areas that will be used for Unit 3 facilities and construction support facilities and activities, and do not include (1) areas that may be impacted as a result of additions and modifications to facilities supporting Units 1 and 2, (2) the NAPS-to-Ladysmith transmission corridor, and (3) [

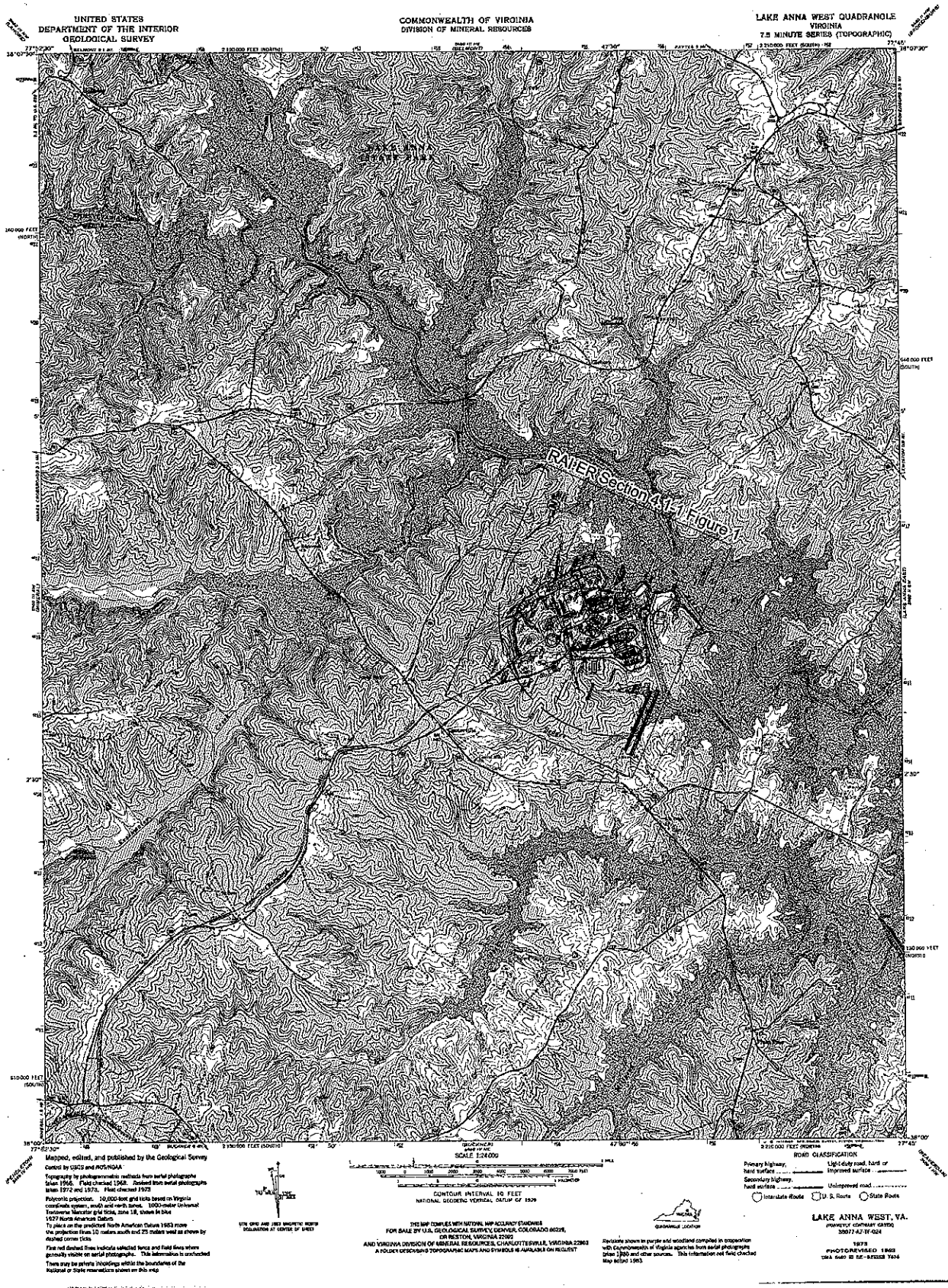
]

Proposed COLA Revision

None.



RAI ER SECTION 4.1-1
FIGURE 1



RAI ER Section 4.1-1 Figure 2